

CLAIMS

What is claimed is:

- 5 1. A vehicle comprising:
 a plurality of wheels;
 an internal combustion engine having a drive shaft interconnected to drive at least
 one of the wheels;
 a stator having a core and a plurality of wires disposed on the core in a three-phase
10 winding arrangement;
 a flywheel-rotor apparatus surrounding at least a portion of the stator and
 interconnected with the drive shaft, the flywheel-rotor apparatus being operable to
 magnetically interact with the stator to produce a three-phase alternating current in the
 wires, and to provide an inertia to the internal combustion engine; and
15 a power circuitry electrically connected to the plurality of wires, the power
 circuitry being operable to receive the three-phase alternating current and to controllably
 generate a single-phase alternating current.
- 20 2. A vehicle as set forth in claim 1 wherein the power circuitry includes
 a regulator that regulates the three-phase alternating current to a direct current,
 a storage device that stores the direct current, and
 an inverter that converts the direct current to the single-phase alternating current.
- 25 3. A vehicle as set forth in claim 1 wherein the three-phase alternating current
 includes a high-voltage, three-phase alternating current,
 wherein the single-phase alternating current includes a first-voltage, single-phase
 alternating current,
 wherein the stator further includes a low-voltage wire disposed on the core, and
 wherein the flywheel-rotor apparatus magnetically interacts with the low-voltage
30 wire to produce a second-voltage, single-phase alternating current in the low-voltage wire.

4. A vehicle as set forth in claim 3 wherein the high-voltage, three-phase alternating current is greater than approximately two hundred volts peak-to-peak, and the second-voltage, single-phase alternating current is less than approximately fifty volts peak-to-peak.

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5. A vehicle as set forth in claim 3 wherein the power circuitry includes a first power circuitry, and

wherein the vehicle further comprises:

a second power circuitry electrically connected to the low-voltage wire, the
10 second power circuitry being operable to receive the second voltage, single-phase alternating current and controllably generate a direct current.

6. A vehicle as set forth in claim 5 wherein the first-voltage, single-phase alternating current is between ninety and one hundred thirty five volts root-mean-square, and the
15 direct current is between ten and fifty volts.

7. A generator as set forth in claim 5 wherein the first-voltage, single-phase alternating current is approximately one hundred twenty volts root-mean-square, and the direct current is approximately twelve volts.

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8. A generator as set forth in claim 3 wherein the core includes a plurality of teeth, the total number of teeth being represented by (x),

wherein the first plurality of wires are disposed on (n) teeth, and

wherein the low-voltage wire is disposed on (x - n) teeth.

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9. A generator as set forth in claim 3 wherein the core includes a plurality of teeth, wherein the first plurality of wires are disposed on each of the teeth, and wherein the low-voltage wire is disposed on at least one of the teeth.

10. A vehicle as set forth in claim 1 wherein the power circuitry includes a first power circuitry,

wherein the three-phase, alternating current is a first three-phase, alternating current,

5 wherein the single-phase alternating current is a first single-phase alternating current,

wherein the vehicle further comprises:

a second power circuitry having at least two connections interconnected with the plurality of wires, at least one of the two connections being a tap off of one of the phases, the second power circuitry being operable to receive a second alternating current and to controllably generate a direct current.

11. A vehicle as set forth in claim 10 wherein the second alternating current is a single-phase current.

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12. A vehicle as set forth in claim 10 wherein the second alternating current is a three-phase current.

13. A vehicle as set forth in claim 10 wherein the first single-phase alternating current is between ninety and one hundred thirty five volts root-mean-square, and the direct current is between ten and fifty volts.

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14. A vehicle as set forth in claim 10 wherein the first single-phase alternating current is approximately one hundred twenty volts root-mean-square, and the direct current is approximately twelve volts.

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15. A vehicle as set forth in claim 10 wherein the second power circuitry has three connections to the plurality of wires, each connection being a tap off of a distinct one of the phases.

16. A vehicle as set forth in claim 1 wherein the power circuitry includes a first power circuitry,

wherein the three-phase alternating current is a first three-phase alternating current,
wherein the single-phase alternating current is a first single-phase alternating

5 current,

wherein the vehicle further comprises:

a second power circuitry having at least two connections interconnected
with the plurality of wires, the second power circuitry being operable to receive a second
alternating current and controllably generate a low-voltage direct current.

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17. A vehicle as set forth in claim 16 wherein the second alternating current is a signal-
phase alternating current.

18. A vehicle as set forth in claim 16 wherein the second alternating current is a three-
15 phase alternating current.

19. A vehicle as set forth in claim 16 wherein the first single-phase alternating current
is between ninety and one hundred thirty five volts root-mean-square, and the direct
current is between ten and fifty volts.

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20. A generator as set forth in claim 16 wherein the first single-phase alternating
current is approximately one hundred twenty volts root-mean-square, and the direct
current is approximately twelve volts.

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21. A vehicle as set forth in claim 16 wherein the second power circuitry includes two
connections interconnected with the plurality of wires.

22. A vehicle as set forth in claim 16 wherein the second power circuitry includes three
connections interconnected with the plurality of wires.

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23. A vehicle as set forth in claim 16 wherein the first and second power circuitries are
interconnected.